BASELINE MONITORING REPORT

WICOMICO BUFFER MITIGATION SITE
EDGECOMBE COUNTY, NORTH CAROLINA

DMS PROJECT NO.100188
NCDEQ CONTRACT NO. 200209-01
DWR PROJECT NO. 2021-0750 VERSION 2

Tar Pamlico River Basin
Cataloging Unit 03020103
RFP#:16-20200209

Data Collection: March 2023
Submission: May 2023

Prepared for:

NC Department of Environmental Quality
Division of Mitigation Services
1652 Mail Service Center
Raleigh, NC 27699-1652

FREESE AND NICHOLS
Innovative approaches
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531 N. Liberty St. + Winston-Salem, North Carolina 27101 + 336-790-6744 + FAX 817-735-7491 www.freese.com

August 31, 2023

Emily Dunnigan
Project Manager – Eastern Region
Division of Mitigation Services
217 West Jones St
Raleigh, NC 27603

Re: Response to NC DMS Comments on Draft MY0 Report Submittal
Wicomico Buffer Mitigation Site, Edgecombe County, NC
Tar Pamlico River Basin
DMS Project No. 100188

Dear Ms. Dunnigan:

Freese and Nichols received comments from you on June 7, 2023 on the Wicomico Draft MY0 report submitted on May 19, 2023. This letter provides our response to those comments (in blue below).

1. Please update the second page with the correct DWR project number version to match the first page.
   - ❖ DWR project number on second page was updated as requested.
2. Please include a discussion/summary of the baseline monitoring results within the narrative.
   - ❖ Discussion and summary of the baseline monitoring results have been added as Section 5.
3. Figure 3: Label UT1
   - ❖ UT1 label has been added.
4. Table 1: Correct initial planting date to be March 2022.
   - ❖ Initial planting date updated to March 2022.
5. On the survey, the stream is depicted as a ditch. Suggest revising callouts and an alternative line type to better distinguish a ditch from stream UT1.
   - ❖ An additional callout and differentiating line type was added to the survey plat to better distinguish UT1 from adjacent ditches.

We hope that these responses adequately address the NC DMS comments, and we look forward to working with NC DMS during the next phases of this important project.

Sincerely,

Ian Jewell
Project Manager
Ian.Jewell@freese.com

Baseline Monitoring Report

Wicomico Riparian Buffer Mitigation Site
Edgecombe County, NC

DMS Project No. 100188
DMS Contract No. 200209-01
DWR Project No. 2021-0750 version 2

Tar Pamlico Watershed
HUC 03020103

Prepared for:

NC Department of Environmental Quality
Division of Mitigation Services
1652 Mail Service Center
Raleigh, NC 27699-1652

Prepared by:

Freese and Nichols, Inc.
531 N Liberty St
Winston-Salem, NC 27101

This mitigation plan has been written in conformance with the requirements of the following:

- 15A NCAC 02B .0295 Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers.
- 15A NCAC 02B .0703, Nutrient Offset Trading Rule, amended effective September 1, 2010
- NCDEQ Division of Mitigation Services In-Lieu Fee Instrument signed and dated July 28, 2010.

These documents govern NCDMS operations and procedures for the delivery of compensatory mitigation.

Contributing Staff:

Bryan Dick, PhD, PE, PH	*Lead Technical Professional/ Lead Quality Assurance*
Ian Jewell, JD	*Project Manager*
Emily Brown, PE, ENV SP, CFM	*Monitoring Lead*
Liam Hales	*Field Monitoring Team*
Annamarie Eustice, EIT	*Field Monitoring Team*
Jason Steele, PhD, PWS	*Baseline Monitoring Report*

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1.0 MITIGATION PROJECT SUMMARY

1.1 PROJECT SUMMARY

The Wicomico Riparian Buffer Mitigation Site (the Site, Project, or Project Site) is a buffer restoration project located approximately 4.5 miles south of Speed and 5 miles east of Tarboro in Edgecombe County, North Carolina (**Figure 1**). The site is accessed from NC-111 and the Site centroid coordinates are 35.90712,-77.44034. The Site is expected to generate 160,000 riparian buffer credits in the Tar-Pamlico 03020103 hydrologic unit code (HUC) (**Figure 2**). The Site is within a Targeted Local Watershed (TLW) and is discussed in the Tar-Pamlico River Basin RBRP. The Site area is encompassed by catchments associated with targeted resource areas (TRAs). The catchments (IDs 3348463, 3348487, 3348547, 3348593, 3348597, 3348595, and 3348605) are associated with water quality, habitat, and hydrology TRAs. The Site involves riparian restoration of 3.67 acres along an unnamed tributary of the Tar River (UT1) that flows adjacent to the site and eventually flows into the Tar River approximately 4.1 river miles downstream.

The project will reduce nutrient and sediment inputs to UT1 and ultimately the Tar River downstream. The restored floodplain area will filter sediment during rainfall events, create shading to minimize thermal pollution, and provide a wildlife corridor to connect nearby forested areas. The surrounding area is primarily agricultural fields. The Project restored forested riparian buffers and adjacent riparian areas to a maximum of approximately 100 feet from the top of bank of UT1 and removed rotating crops and fertilizer inputs. The restored buffer will filter runoff from the surrounding agricultural field and improve stream temperatures and habitat by shading UT1. Invasive vegetation will be treated as needed within the Site to promote native vegetation.

The Site was characterized by row crop agriculture prior to construction. The final mitigation plan was approved on August 9, 2022. Planting was initiated on March 17, 2022, and site planting was completed on March 18, 2022 with a subsequent herbaceous seeding installed in spring of 2023. Planting was undertaken “at-risk” in order to facilitate landowner land management goals for the property. Site boundary markers were installed on March 28, 2023.

1.2 PROJECT GOALS

The major goals of the riparian restoration project are to provide ecological and water quality enhancements to the Tar-Pamlico River Basin by creating a functional riparian corridor and restoring the riparian area.

This buffer restoration project will reduce sediment and nutrient loading, provide and improve terrestrial and in stream habitats, and improve stream and bank stability. The area surrounding the streams was previously agricultural fields, typically used to grow hay, soybeans, and cotton. Restoring up to 100 feet of vegetative buffer along the channels has removed the crops and fertilizer inputs within the project area. The restored floodplain areas will assist in filtering sediment during high rainfall events. The

establishment of riparian areas will create shading to minimize thermal heating. Finally, invasive vegetation will be treated as needed within the Site and the newly planted native vegetation will provide cover and food for wildlife. Specific enhancements to water quality and ecological processes are outlined below.

- Decrease nutrient inputs from on and off-site by filtering runoff from agricultural fields through restored native buffer zones.
- Sediment from on and off-site sources will be deposited on restored floodplain areas where native vegetation will slow overland flow velocities.
- Remove areas of flow concentration and allow overland flow velocities to further slow by entering native vegetation buffer.
- Permanently protect the Site by establishing a conservation easement on the Site that will protect the riparian area in perpetuity.

1.3 EXISTING SITE CONDITIONS

Prior to construction ,the Site was primarily agricultural production fields located on one parcel. The project included the restoration of the riparian area along UT1 (**Figure 3** in **Appendix A**). The property adjacent to the Site is currently managed for agricultural production (corn and soybeans) and lacks existing forested buffer along the streams and drainage ways bisecting and surrounding the Site. Site drainage and hydrology were altered with channelized streams and cleared agricultural lands prevalent on historic aerial photographs dating back to the 1905s. The riparian area was dominated by row crop agriculture with a single row of trees along UT1.

On April 21, 2021, staff with the NC Division of Water Resources (DWR) conducted an on-site determination of site channels for the applicability of the Tar Pamlico Riparian Buffer Rules (15A NCAC 02B .0259). It was determined that the reach of UT1 bordering the site is subject to Tar Pamlico Buffer Rules. A copy of the DWR Stream Determination letter (dated April 28, 2021) is provided in **Appendix B**.

2.0 DETERMINATION OF CREDITS

Riparian buffer and adjacent riparian area restoration was accomplished in accordance with the Consolidated Buffer Mitigation Rule (15A NCAC 02B .0295). All areas within 100+ linear feet of the top of bank of subject streams as measured from the top of bank landward were planted and devoted to generating riparian buffer mitigation credits. Mitigation credits generated are found in **Table 3** and **Figure 3** in **Appendix A** and are based upon the as-built survey (**Appendix C**) and DWR Buffer Mitigation Calculation Tool v3 (updated August 2020) (**Appendix A**). Slight deviations from the Wicomico Buffer Mitigation Plan occurred as a result of improved accuracy that the as-built survey provides in comparison

to estimates obtained using GIS data. Total riparian buffer credits changed from 160,000.000 square feet to 162,804.000 square feet.

3.0 BASELINE SUMMARY

A high quality riparian area was restored along UT1. The project design ensured that no adverse impacts to existing riparian buffers occurred. **Figure 3** illustrates the credit zones for the Site. Detailed descriptions of the restoration activities follow in Sections 3.1 and 3.2.

3.1 SITE PREPARATION

Prior to planting, the buffer restoration area was mainly used to produce cotton and soybeans. The mitigation plan stated that subsoiling would be performed prior to planting. The Site was subsoiled and disked by the landowner during preparation of the adjacent parcel for row crop planting on March 17, 2022. The riparian buffer restoration area was assessed prior to planting and additional subsoiling and tilling was determined to no longer be necessary. A broadleaf herbicide was applied to the Site as a component of planting the small grain crop that was in-place prior to planting the easement proper. Volunteer vegetation, which was comprised of primarily of the native herbaceous species broomsedge (*Andropogon virginicus*) and autumn millet (*Panicum dichotomiflorum*), began to appear prior to planting of the buffer restoration area further indicating that soil compaction was not an issue. Herbaceous cover (riparian seed mix) was seeded partially on March 17, 2022 and again in March 2023 with a mix of warm season cover crops and permanent native herbaceous species seed mix. The first seeding was to provide a seed bank, but it was anticipated that the broadleaf herbicide used for the previous small grain row crop would be detrimental to the 2022 seeding. Thus, 1/3 of the seed mix was held till 2023 seeding date to improve survivability. The drainage culvert that was located in the southern portion of the Site was removed during site preparation activities and any associated drainage swales were graded and disked to remove concentrated flow areas within the riparian buffer area.

3.2 RIPARIAN AREA RESTORATION ACTIVITIES

Riparian area restoration involved the planting of native tree and shrub species along the riparian corridor. The species composition planted was selected based on the community type, observed species in riparian areas adjacent to the Site, wildlife habitat goals, best professional judgement on species establishment and anticipated successional vegetation changes resulting from changes in Site conditions following project implementation. Woody species were planted at a density sufficient to meet the performance standards outlined in 15A NCAC 02B .0295 of 260 trees per acre at the end of five years. No one tree species was greater than 50% of the established stems. Planting was completed on March 18, 2022. The planting date was selected at the request of the landowner, which was prior to the approval of the final mitigation plan. Even though planting was conducted in the spring of 2022, monitoring activities for Monitoring Year 1 (MY1) will be conducted in September 2023. Vegetation management and herbicide

applications will be implemented as needed during the tree establishment to prevent the establishment of invasive species that could compete with planted native species.

4.0 ANNUAL MONITORING AND PERFORMANCE CRITERIA

The performance criteria for the Site follows approved performance criteria presented in the guidance documents outlined in RFP 16-20200209 and the Consolidated Buffer Rule (15A NCAC 02B .0295). Annual monitoring and semi-annual Site visits will be conducted to assess the condition of the finished project.

4.1 VISUAL ASSESSMENTS

Visual assessments should support the specific performance standards for each metric as described above. Visual assessments will be performed within the Site on a semi-annual basis during the five-year monitoring period. Problem areas with vegetative health will be noted (e.g., low stem density, vegetation mortality, invasive species, or encroachment). Areas of concern will be mapped and photographed and accompanied by a written description in the annual report. Problem areas will be re-evaluated during each subsequent visual assessment.

4.2 VEGETATION

The buffer restoration project has been assigned specific performance criteria components for vegetation. Performance criteria will be evaluated throughout the five-year postconstruction monitoring. An outline of the performance criteria and monitoring components follows and are depicted in **Figure 3** and included in **Table 4**, located in **Appendix A**.

The final vegetative success criteria will be the survival of 260 planted stems per acre in the riparian corridor at the end of the required five-year monitoring period. The extent of invasive species coverage will also be monitored and treated as necessary throughout the required monitoring period.

Five vegetation monitoring plots were installed across the Site to measure the survival of the planted stems (**Figure 3**). Vegetation monitoring will follow the CVS-EEP Level 2 Protocol for Recording Vegetation (2008). Reference photographs of the vegetation plots and Site will be taken during the annual vegetation assessments, planted stems will be flagged annually to discern in the provided photos. **Appendix D** includes the baseline (MY0) vegetation plot photographs and the planted and total stem counts.

4.3 PHOTO REFERENCE STATIONS

Individual plot photos taken at the approximate southwest corner (origin) of each plot are included in this baseline monitoring report. All photo points were located by survey and georeferenced for map production to provide a consistent means for photo replication annually and in the event a plot or photo location must be reestablished during the monitoring period. Photo orientation (direction and bearing) were recorded for consistency in photo documentation.

4.4 ANNUAL REPORTING PERFORMANCE CRITERIA

Using the DMS Riparian Buffer and Nutrient Offset Buffer Baseline and Annual Monitoring Report Template version 2.0 (May 2017), monitoring reports will be prepared in the fall of each monitoring year and submitted to DMS. Annual monitoring reports will be based on the above referenced DMS Template (May 2017). The monitoring period will extend five years beyond completion of construction or until performance criteria have been met.

4.5 MAINTENANCE AND CONTINGENCY PLANS

The Site boundary was properly marked with NCDMS placards approximately every 100 feet. Adaptive management will be performed during the monitoring years to address issues, as necessary. If, during annual monitoring it is determined the Site's ability to achieve Site performance standards are jeopardized, DMS will be notified, and contingency plans and remedial actions will be developed collaboratively. Any actions implemented will be designed to achieve the success criteria specified previously and will include a work schedule and updated monitoring criteria (if applicable).

5.0 MONITORING YEAR 0 – DATA ASSESSMENT

5.1 VEGETATION ASSESSMENT SUMMARY

The MY0 vegetation assessment was completed on March 28, 2023. Vegetation monitoring resulted in a sitewide stem density average of 600 planted stems per acre, above the requirement of 260 trees per acre by MY5. All five permanent vegetation plots met the MY5 success criteria. **Appendix D** includes vegetation plot photographs and vegetation plot data. No vegetation areas of concern were identified during MY0. Vegetation establishment across the site appears to be on target to meet success criteria.

6.0 REFERENCES

Lee, Michael T. Peet, Robert K., Steven D. Wentworth, Thomas R. 2008. CVS-EEP Protocol for Recording Vegetation Version 4.2.

Natural Resources Conservation Service (NRCS). Web Soil Survey of Edgecombe County.

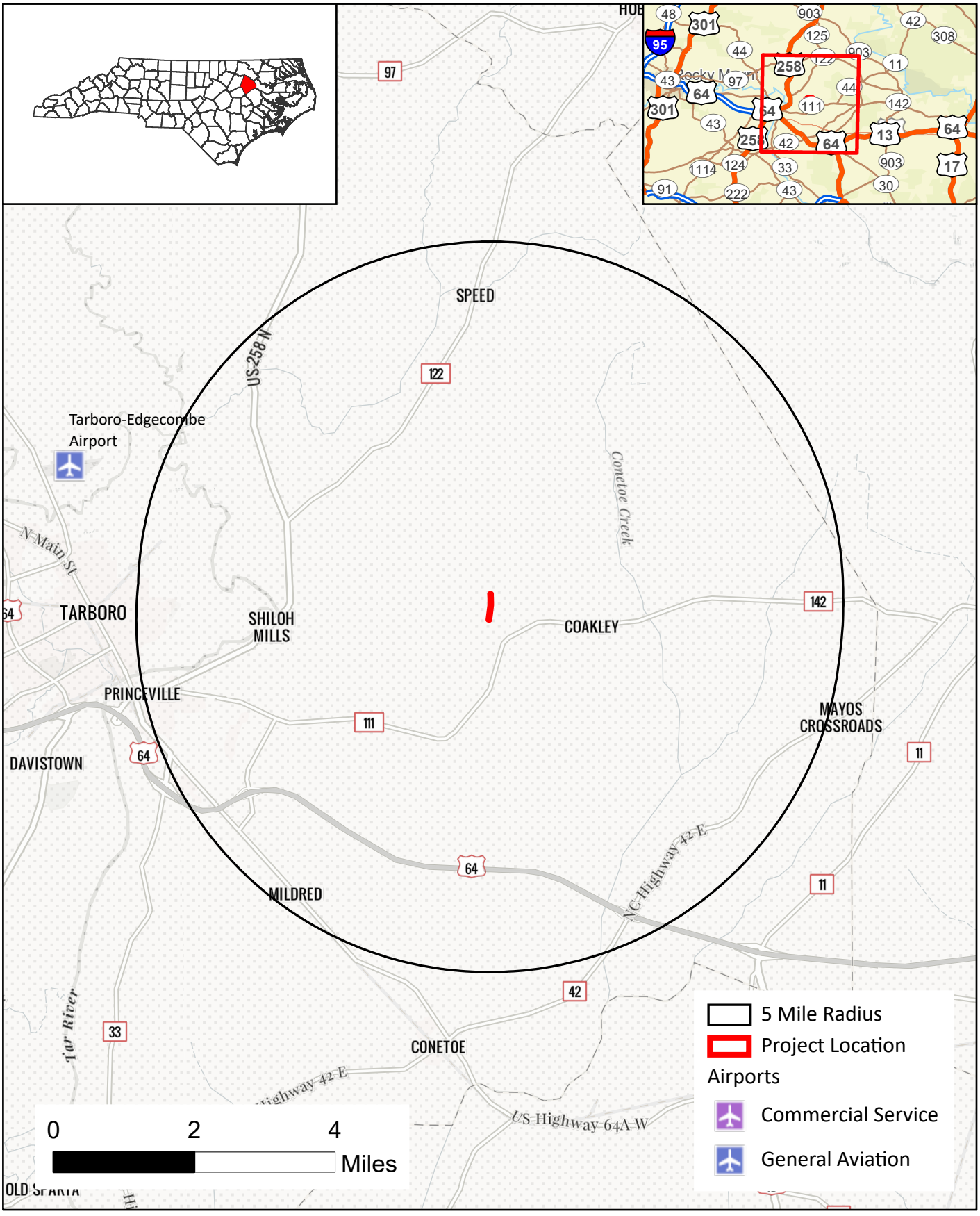
North Carolina Division of Environmental Quality, Division of Water Resources (NCDWR) 2011. Surface Water Classifications.

North Carolina Department of Environmental Quality, Division of Mitigation Services (NCDMS), 2017. Riparian Buffer and Nutrient Offset Buffer Baseline and Annual Monitoring Report Template version 2.0

Freese and Nichols, Inc. (2022). Wicomico Buffer Mitigation Site – Mitigation Plan. North Carolina Department of Environmental Quality, Division of Mitigation Services (NCDMS), Raleigh, NC.

Appendix A

Figures and Tables



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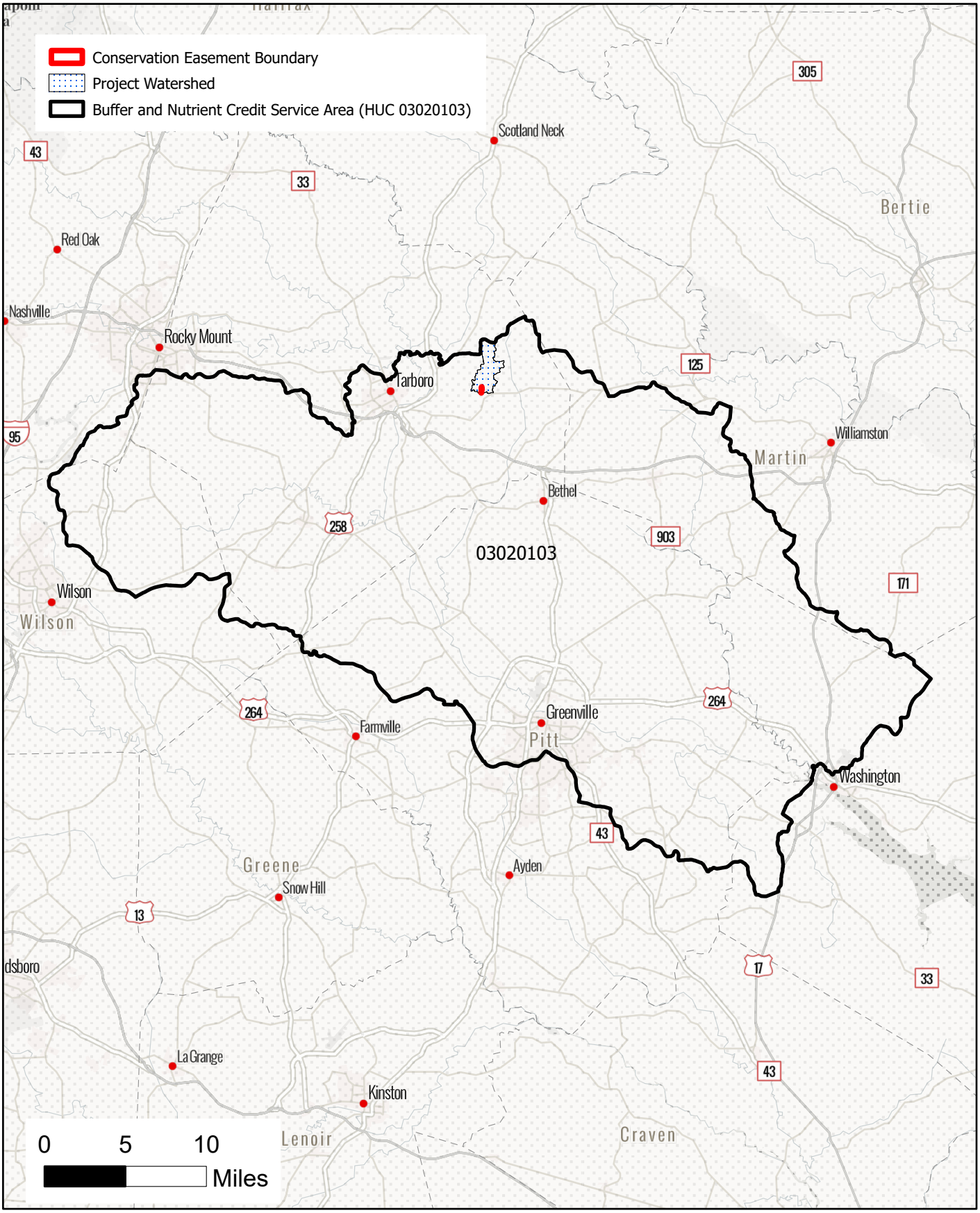
VICINITY MAP

Wicomico Buffer Mitigation Site
Edgecombe County, NC

FIGURE 1

FREESE AND NICHOLS
531 N. Liberty St.
Winston-Salem, NC 27101
336-790-6744



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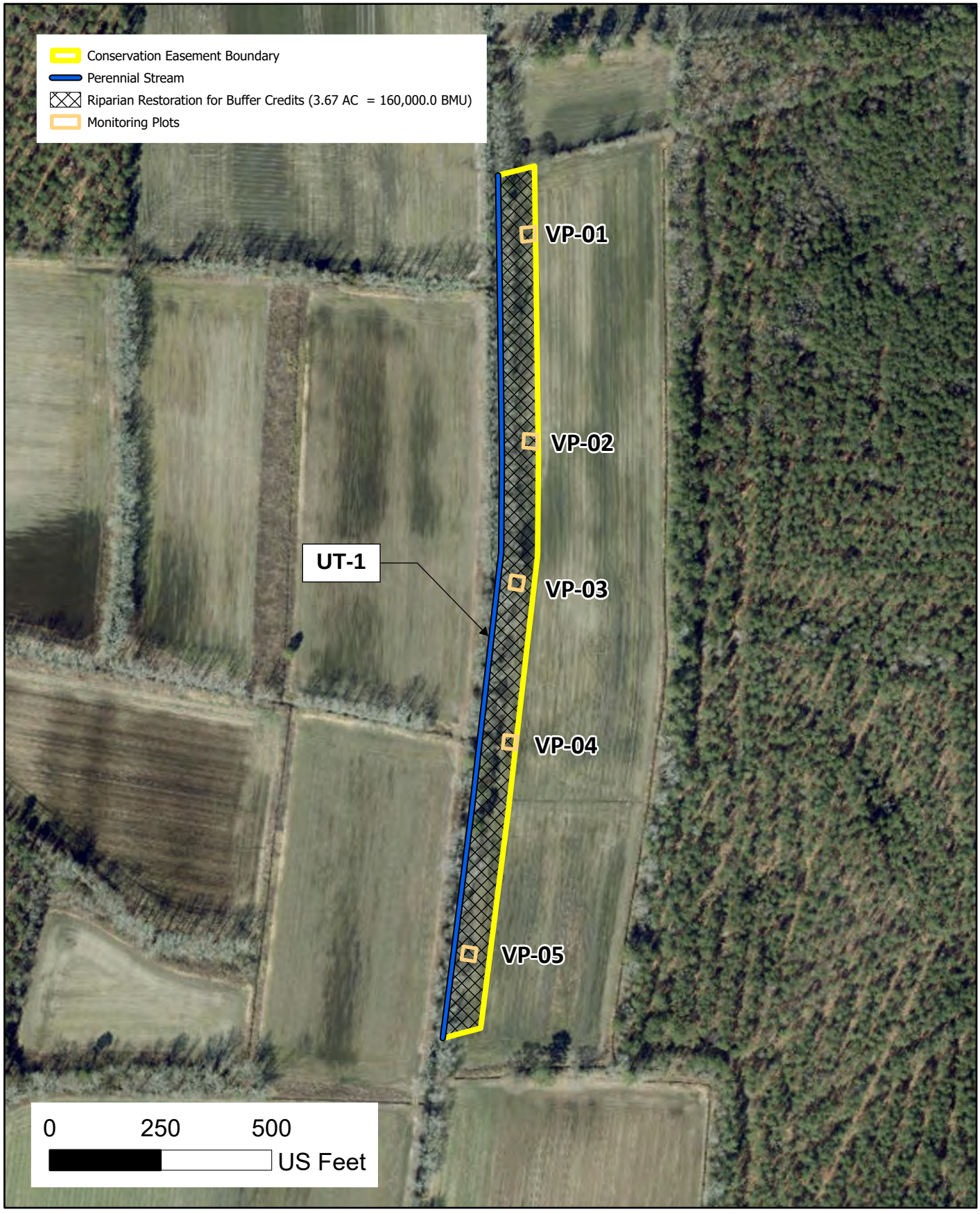
RIPARIAN BUFFER & NUTRIENT OFFSET CREDIT SERVICE AREA MAP

Wicomico Buffer Mitigation Site
Edgecombe County, NC

FIGURE 2

FREESE AND NICHOLS

531 N. Liberty St.
Winston-Salem, NC 27101
336-790-6744



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BUFFER MITIGATION MAP AND PLOT LOCATIONS

Wicomico Buffer Mitigation Site
Edgecombe County, NC

FIGURE 3

FREESE AND NICHOLS
531 N. Liberty St.
Winston-Salem, NC 27101
336-790-6744

Table 1. Project attributes for the Wicomico Buffer Mitigation Site, Baseline Monitoring (MY0), 2023.

Project Name	Wicomico Buffer Mitigation Site
River Basin	Tar Pamlico
USGS Hydrologic Unit 8-digit/Credit Service Area	03020103
USGS Hydrologic Unit 14-digit	03020103010010
NCDWR River Sub-basin	Lower Tar
Geographic Location (Lat/ Long DD)	35.90712,-77.44034
Site Protection Instrument (DB, PG)	To be recorded
Total Credits (BMU)	162,804.000
Type of Credits	Riparian Buffer with flexibility to convert into nutrient offsets
Mitigation Plan Date	February 2022
Initial Planting Date	March 2022
Baseline Report Date	May 2023
MY1 Report Date	November 2023
MY2 Report Date	November 2024
MY 3 Report Date	November 2025
MY 4 Report Date	November 2026
MY 5 Report Date	November 2027

Table 2. Planted tree species for the Wicomico Buffer Mitigation Site, Baseline Monitoring (MY0), 2023.

Scientific Name	Common Name	Tree/ Shrub	Quantity	% Composition
Platanus occidentalis	American sycamore	Tree	325	16%
Callicarpa americana	American beautyberry	Shrub	152	7%
Cornus amomum	Silky Dogwood	Shrub	110	5%
Lindera benzoin	Spicebush	Shrub	175	9%
Quercus pagoda	Cherrybark Oak	Tree	194	9%
Quercus michauxii	Swamp chestnut oak	Tree	330	16%
Quercus nigra	Water oak	Tree	220	11%
Sambucus canadensis	Elderberry	Shrub	109	5%
Castanea pumila	Allegheny Chinkapin	Shrub	110	6%
Diospyros virginiana	American persimmon	Tree	330	16%

Table 3. Project areas and assets for the Wicomico Buffer Mitigation Site, Baseline Monitoring (MY0), 2023.

Tar-Pamlico 03020103	**Project Area**
19.16394	**N Credit Conversion Ratio (ft²/pound)**
297.54099	**P Credit Conversion Ratio (ft²/pound)**

Credit Type	Location	Subject? (enter NO if ephemeral or ditch [1])	Feature Type	Mitigation Activity	Min-Max Buffer Width (ft)	Feature Name	Total Area (ft²)	Total (Creditable) Area of Buffer Mitigation (ft²)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Convertible to Riparian Buffer?	Riparian Buffer Credits	Convertible to Nutrient Offset?	Delivered Nutrient Offset: N (lbs)	Delivered Nutrient Offset: P (lbs)
Buffer	Rural	Yes	I / P	Restoration	0-100	Stream A	162,804	162,804	1	100%	1.00000	Yes	162,804	Yes	8,495.330	547.165
						Totals (ft2):	**162,804**	**162,804**					**162,804.000**		**8,495.330**	**547.165**
						Total Buffer (ft2):	**162,804**	**162,804**								
						Total Nutrient Offset (ft2):	**0**	**N/A**								

Total Ephemeral Area (ft²) for Credit:	**0**	**0**
Total Eligible Ephemeral Area (ft²):	**40,701**	**0.0%**
Total Eligible for Preservation (ft²):	**54,268**	**0.0%**

Ephemeral Reaches as % TABM

Preservation as % TABM

Enter Preservation Credits Below

Credit Type	Location	Subject?	Feature Type	Mitigation Activity	Min-Max Buffer Width (ft)	Feature Name	Total Area (sf)	Total (Creditable) Area for Buffer Mitigation (ft²)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Riparian Buffer Credits
												—
						Preservation Area Subtotals (ft²):	**0**	**0**				

TOTAL AREA OF BUFFER MITIGATION (TABM)			
Mitigation Totals		**Square Feet**	**Credits**
Restoration:		162,804	162,804.000
Enhancement:		0	0.000
Preservation:		0	0.000
Total Riparian Buffer:		162,804	162,804.000
TOTAL NUTRIENT OFFSET MITIGATION			
Mitigation Totals		**Square Feet**	**Credits**
Nutrient Offset:	**Nitrogen:**	0	0.000
	Phosphorus:		0.000

Table 4. Monitoring components for the Wicomico Buffer Mitigation Site, Baseline Monitoring (MY0), 2023.

Parameter	Monitoring Feature	Quantity	Frequency
Vegetation	CVS Level 2 Quadrant	5	Annual
Visual Assessment		Yes	Annual
Exotic and Nuisance Vegetation			Annual
Project Boundary			Annual

Appendix B

NC DWR Correspondence

ROY COOPER
Governor
JOHN NICHOLSON
Interim Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

June 10, 2021

Jason Steele
Freese and Nichols, Inc.
(via electronic mail: jason.steele@freese.com)

Re: Site Viability for Buffer Mitigation & Nutrient Offset – Wicomico Site
6199 NC 111, Tarboro, NC (near 35.90712, -77.44034)
Tar-Pamlico 03020103
Edgecombe County

Dear Mr. Steele,

On February 22, 2021, Katie Merritt, with the Division of Water Resources (DWR), received a request from you on behalf of Freese and Nichols, Inc. (F&N) for a site visit near the above-referenced site in the Tar-Pamlico River Basin within the 8-digit Hydrologic Unit Code 03020103. The site visit was to determine the potential for riparian buffer mitigation and nutrient offset within a proposed conservation easement boundary, which is more accurately depicted in the attached map labeled “Figure 1” prepared by F&N. The proposed easement boundary in Figure 1, includes all riparian areas intended to be proposed as part of a mitigation site. On April 15, 2021, Ms. Merritt performed a site assessment of the subject site. Staff with F&N were also present.

Ms. Merritt’s evaluation of the features onsite and their associated mitigation determination for the riparian areas are provided in the table below. This evaluation was made from Top of Bank (TOB) and landward 200’ from each feature for buffer mitigation pursuant to 15A NCAC 02B .0295 (effective November 1, 2015) and for nutrient offset credits pursuant to 15A NCAC 02B .0703.

Feature	Classification onsite	[1]Subject to Buffer Rule	[7]Riparian Land uses adjacent to Feature (0-200')	Buffer Credit Viable	[3]Nutrient Offset Viable	[4,5]Mitigation Type Determination w/in riparian areas
A	Stream	Yes	Non-forested agricultural fields with a single line of trees along the top of bank. Invasive understory is present.	Yes	Yes (non-forested areas only)	Non-forested fields - **Restoration Site** per 15A NCAC 02B .0295 (n)
B	Ditch >3' depth	No	Right Bank - Non-forested agricultural fields Left Bank – mature forest along the main upper segment with non-forested agricultural fields along the downstream segment.	No	Yes (non-forested areas only)	Non-forested fields - **Restoration Site** per 15A NCAC 02B .0295 (n)

[1]Subjectivity calls for the features were determined by DWR in correspondence dated April 28, 2021 (DWR# 2021-0750) using the 1:24,000 scale quadrangle topographic map prepared by USGS and the most recent printed version of the soil survey map prepared by the NRCS .

[2]The area of preservation credit within a buffer mitigation site shall comprise of no more than 25 percent (25%) of the total area of buffer mitigation per 15A NCAC 0295 (o)(5) and 15A NCAC 0295 (o)(4). Site cannot be a Preservation Only site to comply with this rule.

[3]*NC Division of Water Resources - Methodology and Calculations for determining Nutrient Reductions associated with Riparian Buffer Establishment*

[4]Determinations made for this Site are determined based on the proposal provided in maps and figures submitted with the request.

[5] All features proposed for buffer mitigation or nutrient offset, must have a planted conservation easement established that includes the tops of channel banks when being measured perpendicular and landward from the banks, even if no credit is viable within that riparian area.

[6]The area of the mitigation site on ephemeral channels shall comprise no more than 25 percent (25%) of the total area of buffer mitigation per 15A NCAC 02B .0295 (o)(7).

Determinations provided in the table above were made using a proposed easement boundary showing proposed mitigation areas shown in Figure 1. The map representing the proposal for the site is attached to this letter and initialed by Ms. Merritt on June 10, 2021. Substantial changes to the proposed easement boundary could affect the Site's potential to generate buffer mitigation and nutrient offset credits.

This letter does not constitute an approval of this Site to generate buffer and nutrient offset credits. Pursuant to 15A NCAC 02B .0295, a mitigation proposal and a mitigation plan shall be submitted to DWR for written approval **prior** to conducting any mitigation activities in riparian areas and/or surface waters for buffer mitigation credit. Pursuant to 15A NCAC 02B .0703, a proposal regarding a proposed nutrient load-reducing measure for nutrient offset credit shall be submitted to DWR for approval prior to any mitigation activities in riparian areas and/or surface waters.

All vegetative plantings, performance criteria and other mitigation requirements for riparian restoration, enhancement and preservation must follow the requirements in 15A NCAC 02B .0295 to be eligible for buffer and/or nutrient offset mitigation credits. For any areas depicted as not being viable for nutrient offset credit above, one could propose a different measure, along with supporting calculations and sufficient detail to support estimates of load reduction, for review by the DWR to determine viability for nutrient offset in accordance with 15A NCAC 02B .0703.

This viability assessment will expire on June 8, 2023 or upon approval of a mitigation plan by the DWR, whichever comes first. This letter should be provided in any nutrient offset, buffer, stream or wetland mitigation plan for this Site.

Please contact Katie Merritt at (919) 707-3637 if you have any questions regarding this correspondence.

Sincerely,

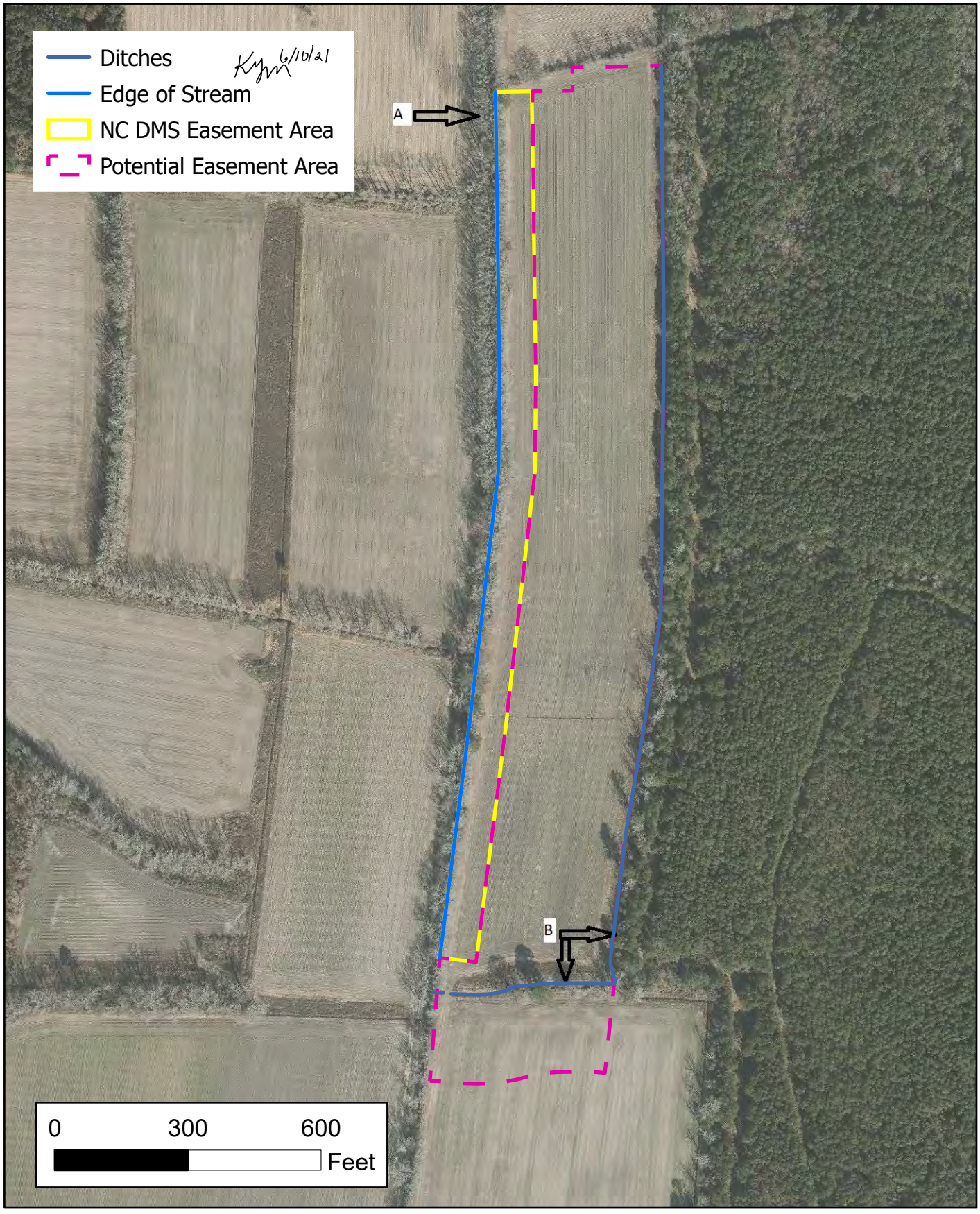
DocuSigned by:
Paul Wojoski
949D91BA53EF4E0...

Paul Wojoski, Supervisor
401 and Buffer Permitting Branch

PW/kym

Attachments: Figure 1.

cc: File Copy (Katie Merritt)



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PROJECT AREA AND BUFFER FEATURES

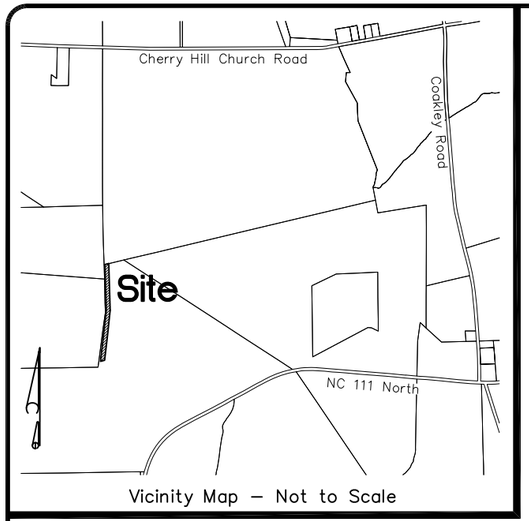
Wicomico Buffer Mitigation Site
Edgecombe County, NC

FIGURE 1

FREESE AND NICHOLS
531 N. Liberty St.
Winston-Salem, NC 27101
336-790-6744

Appendix C

As-Built Survey



Vicinity Map – Not to Scale

North

NC Grid North – NAD 83(NSRS 2011)

THIS MAP IS NOT FOR RECORDATION OR CONVEYANCES AND DOES NOT COMPLY WITH G.S.47-30 MAPPING REQUIREMENTS

Surveyor's Certificate

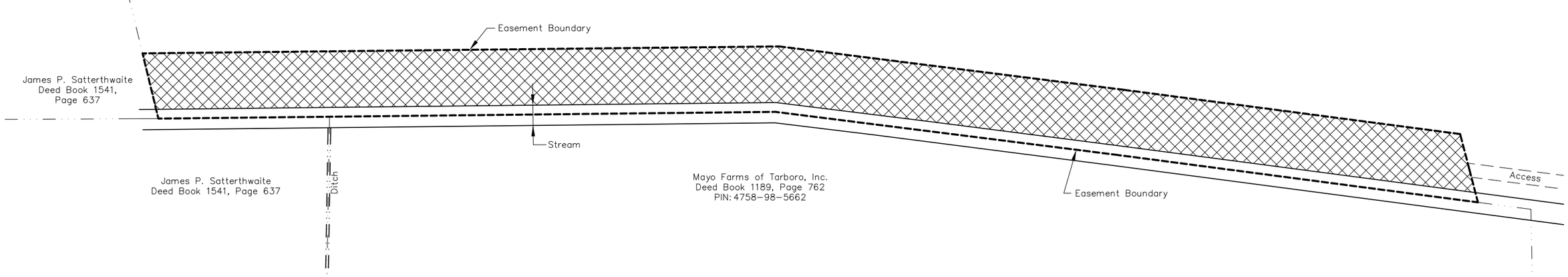
I, Linda F. Humphrey, as a duly Registered Professional Land Surveyor in the state of North Carolina, certify that this buffer map was drawn under my supervision, is an accurate and complete representation of what was constructed in the field. That the easement boundary is based on Plat Cabinet 13, Slide 270, recorded in the Edgecombe County Register of Deeds office, and that the buffer areas shown are calculated from as–built conditions (information provided by others) except where otherwise noted hereon. Witness my original signature, registration number and seal this 1st day of September, 2023.

Linda F. Humphrey, Professional Land Surveyor L–4879

NORTH CAROLINA PROFESSIONAL SEAL L-4879 LAND SURVEYOR LINDA F. HUMPHREY
9-1-2023

Notes

- All distances are horizontal ground measurements in feet and decimals thereof, unless otherwise noted.
- Acreage data is by computer computation
- This map was drawn from information provided by others.



Legend

= Riparian Buffer Restoration (1–100')
= Easement Boundary
= Property Line Not Surveyed
= Ditch
= Stream

Credit Area	Square Feet	Acres	Legend
Riparian Buffer Restoration (0–100')	162,804	3.74 acres	

150' 0 300' 450'

SCALE: 1 inch = 150 ft

As–Built Survey For:

MAYO FARMS OF TARBORO, INC

NC 111 N, Tarboro, NC, #3 Township, Edgecombe County

Scale: 1" = 150' | Date: September 1, 2023

MGA
Mack Gay Associates, P.A.
Engineering • Surveying • Planning
1667 Thomas A. Betts Pkwy., Rocky Mount, NC 27804
Ph: 252-446-3017 - Firm License: C-0569 - mackgaypa.com

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Appendix D

Vegetation Plot Data

Table 5. Vegetation Plot Data for the Wicomico Buffer Mitigation Site, Baseline Monitoring (MY0), 2023.

Planted Acreage	3.74
Date of Initial Planting	3/18/2022
Date of Current Vegetation Survey	3/28/2023
Plot Size (Acres)	0.02

				Plot Data (MY0, 2023)					Annual Summary
	Scientific Name	**Common Name**	**Species Type**	**VP-01**	**VP-02**	**VP-03**	**VP-04**	**VP-05**	**MY0 (2023)**
Species Included in Approved Mitigation Plan	*Callicarpa americana*	American beautyberry	Shrub				1		1
	Castanea pumila	Allegheny Chinkapin	Shrub						0
	Cornus amomum	Silky Dogwood	Shrub	4	1		1		6
	Diospyros virginiana	American persimmon	Tree	4	1		1	5	11
	Lindera benzoin	Spicebush	Shrub		1	6		5	12
	Platanus occidentalis	American sycamore	Tree	4			2		6
	Quercus michauxii	Swamp chestnut oak	Tree		3	3		1	7
	Quercus nigra	Water oak	Tree	1		2			3
	Quercus pagoda	Cherrybark Oak	Tree	1	1	5	2	1	10
	Sambucus canadensis	Elderberry	Shrub				4		4
			Stem Count	14	7	16	11	12	60
			Species Count	5	5	4	6	4	10
			Dominant Species Composition (%)	28.6%	42.9%	37.5%	36.4%	41.7%	20.0%
			Average Tree Height (ft)	2	2	2	2	2	2
			Stems/Acre	567	284	648	445.5	486	600
			% Invasives	0%	0%	0%	0%	0%	0%

Exceeds requirements by more than 10%
Exceeds requirements by less than 10%
Fails to meet requirements by less than 10%
Fails to meet requirements by more than 10%

Table 6. Vegetation Performance Standards Table for the Wicomico Buffer Mitigation Site, Baseline Monitoring (MY0), 2023.

	VP-1				
	Stems/Ac	Avg Tree Height (ft)	# Species	% Dominant Species	% Invasives
Monitoring Year 0	567	2	5	28.6	0
Monitoring Year 1					
Monitoring Year 2					
Monitoring Year 3					
Monitoring Year 4					
Monitoring Year 5					
	VP-2				
	Stems/Ac	Avg Tree Height (ft)	# Species	% Dominant Species	% Invasives
Monitoring Year 0	284	2	5	42.9	0
Monitoring Year 1					
Monitoring Year 2					
Monitoring Year 3					
Monitoring Year 4					
Monitoring Year 5					
	VP-3				
	Stems/Ac	Avg Tree Height (ft)	# Species	% Dominant Species	% Invasives
Monitoring Year 0	648	2	4	37.5	0
Monitoring Year 1					
Monitoring Year 2					
Monitoring Year 3					
Monitoring Year 4					
Monitoring Year 5					
	VP-4				
	Stems/Ac	Avg Tree Height (ft)	# Species	% Dominant Species	% Invasives
Monitoring Year 0	446	2	6	36.4	0
Monitoring Year 1					
Monitoring Year 2					
Monitoring Year 3					
Monitoring Year 4					
Monitoring Year 5					
	VP-5				
	Stems/Ac	Avg Tree Height (ft)	# Species	% Dominant Species	% Invasives
Monitoring Year 0	486	2	4	41.7	0
Monitoring Year 1					
Monitoring Year 2					
Monitoring Year 3					
Monitoring Year 4					
Monitoring Year 5					

Exceeds requirements by more than 10%
Exceeds requirements by less than 10%
Fails to meet requirements by less than 10%
Fails to meet requirements by more than 10%

Monitoring Plots
Wicomico Buffer Mitigation Site
Baseline (MY0) 2023

VP-01. From southwest corner looking northeast.

VP-02. From southwest corner looking northeast.

VP-03. From southwest corner looking northeast

Monitoring Plots
Wicomico Buffer Mitigation Site
Baseline (MY0) 2023

VP-04. From southwest corner looking northeast.

VP-05. From southwest corner looking northeast

Representative photograph of easement signage.